46 / 3.3 (C) $y = \frac{3x-2}{5x}$ f(x) 3x-2 f'(x) 3; g(x) 5x g'(x) 5

$\frac{3x-2}{5x} = \frac{3x}{5x} - \frac{2}{5x} = \frac{3}{5} - \frac{2}{5}x^{-1}$ $\frac{2}{5}x^{-1}$

d^2y/dx^2 $(3x-2)(5x)^{-1}$

$\frac{g(x)\cdot f'(x) - g'(x)\cdot f(x)}{(g(x))^2}$

$\frac{(5x)(3)-(5)(3x-2)}{(5x)^2}$ $\frac{15x-(15x-10)}{(5x)^2}$ $\frac{5}{5}\left(\frac{3x-3x+2}{5x^2}\right)$

$\frac{dy}{dx} = \left(\frac{2}{5x^2}\right)$ $f(x)=2$ $f'(x)=0$ $g(x)=5x^2$ $g'(x)=10x$

$\frac{(5x^2)(0)-(10x)(2)}{(5x^2)^2}$ $\frac{-20x}{25x^4}$ $\boxed{\frac{-4}{5x^3} = \frac{d^2y}{dx^2}}$

$\frac{dy}{dx} = \left(\frac{2}{5x^2}\right) = \frac{2}{5}x^{-2}$ $\left(\frac{2}{5}\right)\left(\frac{-2}{1}\right)\boxed{-\frac{4}{5}x^{-3}}$

18 3.4 $\frac{(x^2+1)\cot x}{3-\cos x \csc x}$

$$\frac{(2x)(\cot x)+(x^2+1)(-\csc^2 x)\,(3-\cos(x)\csc(x))-((x^2+1)\cot(x))\,(-\sin(x)(\csc(x))+(\cos x)(-\csc(x)\cot x))}{(3-\cos(x)(\csc(x))^2}$$

$$\frac{(x^2+1)\cot x}{3-\cos x \csc x} = \frac{(x^2+1)\frac{\cos x}{\sin x}}{3-\cos x \frac{1}{\sin x}} = \frac{(x^2+1)\cos x}{3\sin x-\cos x}$$

$y = \frac{1-x^3}{2-x}$ $\quad \frac{dy}{dx} = \frac{(-3x^2)(2-x) - \left((1-x^3)(-1)\right)}{(2-x)^2}$

$\frac{-6x^2+3x^3-(-1+x^3)}{(2-x)^2}$ $\quad \frac{-6x^2+3x^3+1-x^3}{(2-x)^2}$

$\frac{dy}{dx} = \frac{2x^3-6x^2+1}{(2-x)^2}$

$y = \frac{1}{x^3-1}$ $\quad \frac{dy}{dx} = \frac{0(x^3-1) - \left((1)(3x^2-0)\right)}{(x^3-1)^2}$

$\frac{0-(3x^2)}{(x^3-1)^2}$ $\quad \frac{-3x^2}{(x^3-1)^2}$

$y = (x^3-1)^{-1}$

$y' = -(x^3-1)^{-2}(3x^2)$

$\frac{(x^3-1)^0}{(x^3-1)^1} = (x^3-1)^{0-1} = (x^3-1)^{-1}$

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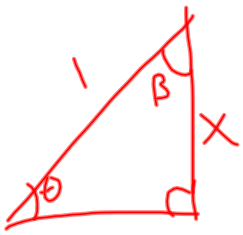
$y = \sin^{-1}(x) + \cos^{-1}(x) = \frac{\pi}{2}$

$\theta \quad \beta$

$\frac{dy}{dx} = \left(\frac{1}{\sqrt{1-x^2}}\right) + \left(\frac{-1}{\sqrt{1-x^2}}\right) = \frac{0}{\sqrt{1-x^2}}$



28) $y = \ln(\cos^{-1} x)$

$\frac{1}{\cos^{-1} x}\left(\frac{-1}{\sqrt{1-x^2}}\right)$

$\left(\frac{1}{\cos^{-1}x}\right)\left(\frac{0\left(\sqrt{1-x^2}\right) - \left((-1)\frac{1}{2}(1-x^2)^{-1/2}(-2x)\right)}{\left(\sqrt{1-x^2}\right)^2}\right) + \frac{\left(0\left(\cos^{-1}x\right)\right) - \left((1)\left(\frac{-1}{\sqrt{1-x^2}}\right)\right)}{\left(\cos^{-1}x\right)^2}$

$\left(\frac{1}{\cos^{-1}x}\right)\left(\frac{0 - \left(-\frac{1}{2}(1-x^2)^{-1/2}(-2x)\right)}{\left(\sqrt{1-x^2}\right)^2}\right) + \frac{-\left(\frac{-1}{\sqrt{1-x^2}}\right)}{\left(\cos^{-1}x\right)^2}$

$\frac{\left(\frac{1}{2}(1-x)^{-1/2}(+2x)\right)}{\cos^{-1}x\left(\sqrt{1-x^2}\right)^2} \quad \frac{1}{\left(\cos^{-1}x\right)^2\sqrt{1-x^2}}$